In The Claims:

1. (Currently Amended) A router circuit having a plurality of electrical input signals comprising:

an electrical-to-optical converter for changing the plurality of electrical input signals into a plurality of optical input signals, said electrical-to-optical converter circuit comprising a plurality of modulated tunable lasers having a programmed wavelength;

a mixing circuit coupled to the electrical-to-optical converter, said mixing circuit generating a plurality of substantially identical composite signals corresponding to the plurality of optical inputs, said composite signals comprising at least a portion of each of said plurality of optical signals;

an optical-to-electrical converter comprising a plurality of tunable optical bandpass filters coupled, respectively, to each one of said plurality of composite signals, each of said bandpass filters having a tunable center wavelength, said plurality of bandpass filters passing a portion of said optical signal to form a plurality of filtered signals, ~~and an optical-to-electrical converter circuit coupled to the plurality of bandpass filters,~~ said optical-to-electrical converter converting said plurality of filtered optical signals into a plurality of respective electrical output signals; and

a control circuit coupled to the plurality of tunable lasers of the electrical-to-optical converter, and to the plurality of tunable optical bandpass filters of the optical-to electrical converter, said control circuit selecting a respective programmed wavelength in response to said plurality of bandpass center wavelengths, said control circuit controlling at least one tunable laser and the respective tunable center wavelength so that said control circuit couples at least a first input signal of the plurality of input signals to at least one of the plurality of respective electrical output signals.

2-6. (Canceled)

7. (Original) A router circuit as recited in claim 1 wherein said mixing circuit comprises at least a first plurality of mixers cross coupled with a second plurality of mixers.

8. (Canceled)

9. (Currently Amended) A router circuit as recited in claim [[8]] 1 wherein said tunable laser is coupled to ~~a control circuit and~~ a temperature sensor, said control circuit tuning said laser in response to said temperature sensor to maintain the programmed wavelength.

10. (Original) A router circuit as recited in claim 1 further comprising a clock circuit, said clock circuit comprising a clock electrical-to-optical converter, an optical delay line and an optical-to-electrical converter.

11. (Currently Amended) A router circuit as recited in claim 10 wherein said optical delay line comprises an optical fiber having a length corresponding to an optical path length of the mixing circuit so that passive synchronization is achieved of said clock signal with said plurality of composite signals at a respective optical-to-electrical converter.

12. (Original) A router circuit as recited in claim 1 wherein said optical-to-electrical converter comprises a photodiode.

13. (Original) A router circuit as recited in claim 1 wherein said mixing circuit comprises a passive star power splitter.

14. (Original) A satellite system comprising:

said electrical inputs comprising RF inputs;

a router circuit as recited in claim 1.

15. (Original) A satellite system as recited in claim 14 further comprising a buffer circuit receiving said plurality of RF signals, said buffer circuit synchronizing said electrical input signals within a predetermined tolerance before the router.

16-21. (Canceled)

22. (Currently Amended) A method of operating a routing circuit comprising:

converting a plurality of electrical input signals to a respective plurality of modulated optical signals;

coupling the plurality of modulated optical signals to a cross connect switch;

forming a plurality of composite signals at a plurality of outputs of the cross-connect switch, said plurality of composite signals composed of said modulated optical signals;

converting each of the composite signals into an electrical output signal corresponding to a portion of said modulated optical signals;

selecting respective programmed wavelengths for a plurality of tunable lasers and bandpass center wavelengths for a plurality of bandpass filters; and

controlling at least one tunable laser and the tunable center wavelength so that at least a first input signal of the plurality of input signals is coupled to at least one of the plurality of respective electrical output signals.

23. (Currently Amended) A method as recited in claim 22 further comprising synchronizing the output signals using a clock signal.

24. (Currently Amended) A method as recited in claim [[22]] 23 wherein synchronizing comprises delaying the clock signal by propagating said clock signal in an optical fiber having an optical length corresponding to a delay of the cross-connect switch, to obtain a delayed clock signal that is passively synchronized with the pluralilty of input optical signals.

25. (Original) A method as recited in claim 22 wherein converting a plurality of electrical signals to a respective plurality of modulated optical signals comprises modulating a respective plurality of diode lasers, each of which is tuned to the center wavelength of a bandpass filter.

26. (New) A circuit as recited in claim 1 wherein the plurality of modulated tunable diode lasers each comprises a pair of diode lasers each having a wavelength switching time longer than a desired wavelength switching time so that while a first of the pair is operating at a first wavelength, a second of the pair is tuning to a second wavelength for use after a next switching event.

27. (New) A method as recited in claim 25 wherein the plurality of modulated tunable diode lasers each comprises a pair of diode lasers each having a wavelength switching time longer than a desired wavelength switching time so that while a first of the pair is operating at a first wavelength, the second of the pair is tuning to a second wavelength for use after a next switching event.

28. (New) A circuit as recited in claim 9 wherein said control circuit controls a wavelength control current to maintain the programmed wavelength.